

EXHIBIT 16

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21 UNITED STATES DISTRICT COURT
22 NORTHERN DISTRICT OF CALIFORNIA
23 SAN FRANCISCO DIVISION

24 ORACLE AMERICA, INC.,
25 Plaintiff,
26 v.
27 GOOGLE INC.,
28 Defendant.

Case No. CV 10-03561 WHA
**ORACLE'S RESPONSES AND
OBJECTIONS TO GOOGLE'S EIGHTH
SET OF INTERROGATORIES (NO. 38)**
Dept: Courtroom 8, 19th Floor
Judge: Hon. William Alsup

1 PROPOUNDING PARTY: Defendant GOOGLE INC.

2 RESPONDING PARTY: Plaintiff ORACLE AMERICA, INC.

3 SET NO.: Eight (No. 38)

4 Pursuant to Rules 33 and 34 of the Federal Rules of Civil Procedure and the parties'
5 stipulation, Plaintiff Oracle America, Inc. ("Oracle") hereby submits the following responses and
6 objections to Defendant Google Inc.'s ("Google") Eighth Set of Interrogatories.

7 **RESPONSES TO INTERROGATORIES**

8 **INTERROGATORY NO. 1:**

9 Identify all facts Relating to your contention in response to Google's Interrogatory No. 23
10 that "Google's use has continued over time, even after the initiation of this lawsuit and after the
11 Federal Circuit's opinion, to selectively take and use more of Oracle's copyrighted material from
12 the Java API Packages and from newer versions of Java."

13 **RESPONSE TO INTERROGATORY NO. 38:**

14 Oracle's infringement contentions are subject to ongoing discovery and expert analysis.
15 Accordingly, Oracle objects to this interrogatory as premature. Accordingly, Oracle's response
16 will be based on the information reasonably available to it at this time and Oracle will supplement
17 its response as appropriate under the Federal Rules of Civil Procedure. Subject to these
18 objections, Oracle responds as follows:

19 The jury has found infringement as to the code and structure sequence and organization of
20 the 37 Java API packages, Oracle's copyrights in Java SE 5.0 were found to be infringed by
21 Android, including version 2.2 (Froyo). Oracle owns many copyrights in the code,
22 documentation, specifications, libraries, and other materials that comprise the Java platform. As
23 new versions of the Java platform were developed and the materials revised, the copyrights were
24 registered with the United States Copyright Office, including TX0004416302; TX0004326014;
25 TX0004616088; TX0005271787; TX0005316757; TX0005316758; TX0005359984;
26 TX0005359985; TX0005359986; TX0005359987; TX0005392885; TX0006066538;
27 TX0006143306; TX0006196514; TX0006848555; TX0008124604; TX0008125959;
28 TX0008124610; TX0008125950 and TX0008125958. Google has infringed Oracle's copyrights.

1 Android Application Programmer Interface (API) package specifications and
 2 corresponding Android code (for all Android versions and whether or not from the Apache
 3 Harmony project and including source, bytecode, and object) that correspond to Oracle's Java
 4 API specifications are unauthorized copying or making a derivative work, and Google's
 5 unauthorized copying and distribution of them is copyright infringement. A comparison of
 6 Android's API package specifications (available at <http://developer.android.com/reference/> and
 7 related subpages) with Oracle's copyrighted Java API package specifications (for example,
 8 available at <http://docs.oracle.com/javase/8/docs/api/>, <http://docs.oracle.com/javase/7/docs/api/>,
 9 <http://docs.oracle.com/javase/6/docs/api/>, <http://docs.oracle.com/javase/1.5.0/docs/api/>,
 10 <http://download.oracle.com/javase/1.4.2/docs/api/>, and
 11 <http://download.oracle.com/javase/1.3/docs/api/>)¹ demonstrates that the following Android
 12 package specifications and corresponding code are derived from or substantially similar to
 13 Oracle's copyrighted Java API package specifications:

- 14 1. java.awt.font
- 15 2. java.beans
- 16 3. java.io
- 17 4. java.lang
- 18 5. java.lang.annotation
- 19 6. java.lang.ref
- 20 7. java.lang.reflect
- 21 8. java.net
- 22 9. java.nio
- 23 10. java.nio.channels
- 24 11. java.nio.channels.spi
- 25 12. java.nio.charset
- 26 13. java.nio.charset.spi

¹ Oracle's copyright infringement claim applies to all versions of Oracle's Java API specifications and implementations from which Android derives, which include J2SE 1.2, J2SE 1.3, J2SE 1.4, and J2SE 5.0, Java SE 6, Java SE 7, and Java SE 8.

- 1 14. java.security
- 2 15. java.security.acl
- 3 16. java.security.cert
- 4 17. java.security.interfaces
- 5 18. java.security.spec
- 6 19. java.sql
- 7 20. java.text
- 8 21. java.util
- 9 22. java.util.jar
- 10 23. java.util.logging
- 11 24. java.util.prefs
- 12 25. java.util.regex
- 13 26. java.util.zip
- 14 27. javax.crypto
- 15 28. javax.crypto.interfaces
- 16 29. javax.crypto.spec
- 17 30. javax.net
- 18 31. javax.net.ssl
- 19 32. javax.security.auth
- 20 33. javax.security.auth.callback
- 21 34. javax.security.auth.login
- 22 35. javax.security.auth.x500
- 23 36. javax.security.cert
- 24 37. javax.sql

25 Some Android package API specifications and corresponding code are substantially
 26 similar to selected portions of some of the Oracle Java API package specifications (*e.g.*,
 27 java.awt.font, java.beans) while other Android package API specifications and corresponding
 28 code are substantially similar to complete portions of other Oracle Java API package

1 specifications (*e.g.*, java.io, java.lang, java.net, java.nio, java.security, java.sql, java.text).
 2 Exhibits A–E to Oracle’s response to Google’s Interrogatory No. 2 (served January 16, 2011) are
 3 illustrative examples.²

4 Google’s copying is evident not only by inspecting the API specifications reflecting
 5 Oracle’s code, but in the source code files from which the API specification documentation was
 6 derived. Google copied thousands of lines of declaring code for numerous classes, interfaces,
 7 methods, and fields that appear in the .java files that comprise the 37 Java packages in the
 8 Android API specification and corresponding code. In addition, Google copied the structure,
 9 sequence, and organization of the 37 Java packages in the Android API specification and
 10 corresponding code.

11 Google continues to copy newer Java code from newer versions of Java, such as Java SE
 12 7, into newer versions of Android. The additional copied code from newer versions of Java, such
 13 as Java SE 7, has been taken by Google from numerous Java API packages, including
 14 java.awt.font, java.io, java.lang, java.lang.ref, java.lang.reflect, java.net, java.nio,
 15 java.nio.channels, java.nio.charset, java.security, java.sql, java.text, java.util, java.util.logging,
 16 java.util.zip, javax.crypto, javax.crypto.spec, javax.net.ssl, javax.security.auth,
 17 javax.security.auth.x500, and javax.sql. Google details the changes it makes to the Java API
 18 packages that it copied in an “Android API Differences Report,” which “shows additions,
 19 modifications, and removals for packages, classes, methods, and fields” in Android. *See, e.g.*,
 20 https://developer.android.com/sdk/api_diff/9/changes.html,
 21 https://developer.android.com/sdk/api_diff/11/changes.html,
 22 https://developer.android.com/sdk/api_diff/14/changes.html,
 23 https://developer.android.com/sdk/api_diff/19/changes.html, and
 24 https://developer.android.com/sdk/api_diff/21/changes.html.

25 Google also infringed Oracle’s copyrights by copying code from the 37 Java API
 26 packages for classes, methods, and fields that are not a part of the public Java API specification.

27
 28 ² The illustrative examples are taken from <http://docs.oracle.com/javase/1.5.0/docs/api/> and <http://developer.android.com/reference/packages.html>.

1 See, e.g., the declaration for private class `CheckedMap<K, V>` in `Collections.java` and the
 2 declaration for the private method `read` in `StringTokenizer.java`. This constitutes copying of
 3 Oracle's implementing code from the 37 Java API Packages.

4 The Android source and class byte code (whether or not from the Apache Harmony
 5 project) that purports to implement Oracle's Java API specifications is an unauthorized derivative
 6 work, and Google's unauthorized copying and distribution of it is copyright infringement. See,
 7 e.g., TX 738 ("What is Android?" (formerly available at
 8 <http://developer.android.com/guide/basics/what-is-android.html> ("Android includes a set of core
 9 libraries that provides most of the functionality available in the core libraries of the Java
 10 programming language.")); Package Index (available at
 11 <http://developer.android.com/reference/packages.html>), including those API packages listed
 12 above, and subsidiary webpages; and source code and documentation files available in:³

13 For Android 2.2 ("Froyo"):

- 14 • `dalvik\libcore\security\src\main\java\java\security`;
- 15 • `dalvik\libcore\security\src\main\java\javax\security\cert`;
- 16 • `dalvik\libcore\security\src\main\java\org\apache\harmony\security`;
- 17 • `dalvik\libcore\luni\src\main\java\java`;
- 18 • `dalvik\libcore\luni\src\main\java\org\apache\harmony\luni`;
- 19 • `dalvik\libcore\luni-kernel\src\main\java\java\lang`;
- 20 • `dalvik\libcore\luni-kernel\src\main\java\org\apache\harmony\kernel`;
- 21 • `dalvik\libcore\luni-kernel\src\main\java\org\apache\harmony\lang`;
- 22 • `dalvik\libcore\nio\src\main\java\java`.

23 For Android 2.3 ("Gingerbread"):

- 24 • `libcore\luni\src\main\java\java\security`;
- 25 • `libcore\luni\src\main\java\javax\security\cert`;
- 26 • `libcore\luni\src\main\java\org\apache\harmony\security`;

28 ³ Google continues to modify the source code available through <https://source.android.com/>.

- 1 • libcore\luni\src\main\java\java;
- 2 • libcore\luni\src\main\java\org\apache\harmony\luni;
- 3 • libcore\luni\src\main\java\java\lang;
- 4 • libcore\luni\src\main\java\org\apache\harmony\kernel;
- 5 • libcore\luni\src\main\java\org\apache\harmony\lang;
- 6 • libcore\luni\src\main\java\java\nio.

7 For Android 4.0.3 (“Ice Cream Sandwich”):

- 8 • \libcore\luni\src\main\java\java\ and subdirectories; and
- 9 • \libcore\luni\src\main\java\javax\ and subdirectories.

10 For Android 4.0.4 (“Ice Cream Sandwich”):

- 11 • \libcore\luni\src\main\java\java\ and subdirectories; and
- 12 • \libcore\luni\src\main\java\javax\ and subdirectories.

13 For Android 4.1.1 (“Jelly Bean”):

- 14 • \libcore\luni\src\main\java\java\ and subdirectories; and
- 15 • \libcore\luni\src\main\java\javax\ and subdirectories.

16 For Android 4.1.2 (“Jelly Bean”):

- 17 • \libcore\luni\src\main\java\java\ and subdirectories; and
- 18 • \libcore\luni\src\main\java\javax\ and subdirectories.

19 For Android 4.2 (“Jelly Bean”):

- 20 • \libcore\luni\src\main\java\java\ and subdirectories; and
- 21 • \libcore\luni\src\main\java\javax\ and subdirectories.

22 For Android 4.2.2 (“Jelly Bean”):

- 23 • \libcore\luni\src\main\java\java\ and subdirectories; and
- 24 • \libcore\luni\src\main\java\javax\ and subdirectories.

25 For Android 4.3 (“Jelly Bean”):

- 26 • \libcore\luni\src\main\java\java\ and subdirectories; and
- 27 • \libcore\luni\src\main\java\javax\ and subdirectories.

28 For Android 4.4 (“KitKat”):

- \libcore\luni\src\main\java\java\ and subdirectories; and
- \libcore\luni\src\main\java\javax\ and subdirectories.

For Android 4.4.2 (“KitKat”):

- \libcore\luni\src\main\java\java\ and subdirectories; and
- \libcore\luni\src\main\java\javax\ and subdirectories.

For Android 4.4.3 (“KitKat”):

- \libcore\luni\src\main\java\java\ and subdirectories; and
- \libcore\luni\src\main\java\javax\ and subdirectories.

For Android 4.4.4 (“KitKat”):

- \libcore\luni\src\main\java\java\ and subdirectories; and
- \libcore\luni\src\main\java\javax\ and subdirectories.

For Android 5.0.0 (“Lollipop”):

- \libcore\luni\src\main\java\java\ and subdirectories; and
- \libcore\luni\src\main\java\javax\ and subdirectories.

For Android 5.1.0 (“Lollipop”):

- \libcore\luni\src\main\java\java\ and subdirectories; and
- \libcore\luni\src\main\java\javax\ and subdirectories.

For Android 5.1.1 (“Lollipop”):

- \libcore\luni\src\main\java\java\ and subdirectories; and
- \libcore\luni\src\main\java\javax\ and subdirectories.

For Android 6.0.0 (“Marshmallow”):

- \libcore\luni\src\main\java\java\ and subdirectories; and
- \libcore\luni\src\main\java\javax\ and subdirectories.

Google has created and distributed infringing works written in native code, in addition to Java code, that derive from Oracle’s copyrighted works. For example, Google makes and distributes dalvik\vm\native\java_lang_Class.c, which is based on Oracle’s java.lang.Class specification. Other examples include:

- dalvik\vm\native\java_lang_Object.c

- 1 • dalvik\vm\native\java_lang_reflect_AccessibleObject.c;
- 2 • dalvik\vm\native\java_lang_reflect_Array.c;
- 3 • dalvik\vm\native\java_lang_reflect_Constructor.c;
- 4 • dalvik\vm\native\java_lang_reflect_Field.c;
- 5 • dalvik\vm\native\java_lang_reflect_Method.c;
- 6 • dalvik\vm\native\java_lang_reflect_Proxy.c;
- 7 • dalvik\vm\native\java_lang_Runtime.c;
- 8 • dalvik\vm\native\java_lang_String.c;
- 9 • dalvik\vm\native\java_lang_System.c;
- 10 • dalvik\vm\native\java_lang_Throwable.c;
- 11 • dalvik\vm\native\java_lang_VMClassLoader.c;
- 12 • dalvik\vm\native\java_lang_VMThread.c; and
- 13 • dalvik\vm\native\java_security_AccessController.c.

14 *See also, e.g.,* source code files in libcore\luni\src\main\native; libcore\luni-
15 kernel\src\main\native.

16 Google's Android videos directly reference inclusion of Java libraries in Android, *e.g.*:

- 17 • Google Presentation, entitled "Android: Securing a Mobile Platform from the
18 Ground Up," presented by Rich Cannings (Google's Android Team) at the Usenix 18th Security
19 Symposium (Aug. 12, 2010), available at <https://www.usenix.org/legacy/events/sec09/tech/>.
- 20 • Google I/O 2010 Video, entitled "A JIT Compiler for Android's Dalvik VM,"
21 presented by Ben Cheng and Bill Buzbee (Google's Android Team), available at
22 <https://www.youtube.com/watch?v=Ls0tM-c4Vfo>.
- 23 • Google I/O 2008 Video, entitled "Dalvik Virtual Machine Internals," presented by
24 Dan Bornstein (Google Android Project), available at
25 <https://www.youtube.com/watch?v=ptjedOZEXPM>.

26 Moreover, Google claims that Android incorporates a subset of Apache Harmony, which
27 it asserts is "an implementation of Sun's Java." (*See, e.g.,* Google's Amended Counterclaims
28 ¶¶ 6-7, 13.)

Google has distributed by way of Android and Android-related websites source, bytecode, and object code derived from or substantially similar to Oracle's source code or to decompiled Oracle object code, including:

- /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/AclEntryImpl.java
- /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/AclImpl.java
- /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/GroupImpl.java
- /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/OwnerImpl.java
- /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/PermissionImpl.java
- /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/PrincipalImpl.java
- /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/cert/PolicyNodeImpl.java
- /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/AclEnumerator.java (which was obtained by decompiling Oracle's /sun/security/acl/AclEnumerator.class)
- /dalvik/libcore/luni/src/main/java/java/util/TimSort.java contains a method, rangeCheck, copied from Oracle's java/util/Arrays.java
- /dalvik/libcore/luni/src/main/java/java/util/ComparableTimSort.java contains a method, rangeCheck, copied from Oracle's java/util/Arrays.java
- /dalvik/libcore/security/src/test/java/org/apache/harmony/security/tests/java/security/CodeSourceTest.java contains comments copied from Oracle's /java/security/CodeSource.java

- 1 • /dalvik/libcore/security/src/test/java/tests/security/cert/CollectionCertStoreParameters
- 2 Test.java contains comments copied from Oracle's
- 3 /java/security/cert/CollectionCertStoreParameters.java
- 4 • \libcore\luni\src\main\java\java\ and subdirectories; and
- 5 • \libcore\luni\src\main\java\javax\ and subdirectories.

6 Pursuant to Fed. R. Civ. P. 33(d), Oracle directs Google to Google's production of code
 7 for Android, App Runtime for Chrome ("ARC"), and Brillo. Additional supporting evidence of
 8 Google's copyright infringement can be found at, *e.g.*, GOOGLE-00296156-75; GOOGLE-
 9 00296453-60; GOOGLE-00296959-61; GOOGLE-00296500-03; GOOGLE-00296507;
 10 GOOGLE-00297265; GOOGLE-00297033-38, GOOGLE-00297252-57, GOOGLE-00297361-
 11 65 and similar questionnaires signed by other developers; GOOGLE-00296203-07; GOOGLE-
 12 00296498-99; GOOGLE-00296523-24; GOOGLE-00296525-26; GOOGLE-00297075-76;
 13 GOOGLE-00392221-24; GOOGLE-00392197; GOOGLE-00392204-12; GOOGLE-00392198-
 14 203; GOOGLE-00392213-16; GOOGLE-00392183-94; GOOGLE-00392181-82; GOOGLE-
 15 00392178-80; GOOGLE-02-00081462; GOOGLE-03-00075095; GOOGLE-01-00029843-45;
 16 GOOGLE-01-00026813; GOOGLE-02-00018744; GOOGLE-01-00025454; GOOGLE-01-
 17 00023889.

18 Discovery is ongoing, and Oracle has not yet completed its investigation of the documents
 19 and facts relevant to the claims and defenses asserted in this action. Accordingly, Oracle's
 20 responses are based on the information reasonably available at this time and Oracle will
 21 supplement this response as appropriate under the Federal Rules of Civil Procedure. The
 22 information provided in this supplemental response is subject to theories and additional factual
 23 support to be set forth in any expert reports. In light of the date specified by the Court for
 24 disclosure of affirmative expert reports on infringement, Oracle notes that because significant
 25 evidence relating to Oracle's infringement claims—including, for example, code—is in Google's
 26 possession, timely production of information and documents relating to damages by Google will
 27 be necessary in order for Oracle's experts to be able to provide detailed analysis of infringement
 28 in their initial reports.

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Dated: December 16, 2015

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PROOF OF SERVICE

I am over the age of eighteen years and not a party to the within-entitled action. My business address is Orrick, Herrington & Sutcliffe LLP, 1000 Marsh Road, Menlo Park, CA 94025. On December 16, 2015, I served the following document(s):

**ORACLE'S RESPONSES AND OBJECTIONS TO
GOOGLE'S EIGHTH SET OF INTERROGATORIES (NO.
38)**

on the interested parties in this action by electronic service [Fed. Rule Civ. Proc. 5(b)] by electronically mailing a true and correct copy, pursuant to Google's counsel's email dated August 24, 2015, to the following listserv:

DALVIK-KVN@kvn.com

I declare under penalty of perjury under the laws of the State of California and the United States that the above is true and correct.

Executed on December 16, 2015 at Redwood City, California

/s/ Robert L. Uriarte
Robert L. Uriarte